Module 0

Welcome to Computer Science

Goal:

Understand

- What computers actually are
- Software vs Hardware
- Programming
- Internet
- AI
- Cybersecurity
- Robotics
- Data Science

Videos

Crash Course Kids

Code.org

TED-Ed

Books

- Hello Ruby
- Computer Science for Kids
- DK Computer Coding

Mini Projects

✔ Make a binary bracelet

✔ Build a paper algorithm

✔ Teach your parents an algorithm

Module 1

Learn Python

This becomes the foundation.

Topics

Week 1

- Variables
- Print
- Input

Week 2

- If statements

Week 3

- Loops

Week 4

- Functions

Week 5

- Lists

Week 6

- Dictionaries

Projects

Calculator

Quiz Game

Number Guessing

Rock Paper Scissors

Story Generator

Emoji Translator

Mini Chatbot

Mad Libs

Treasure Hunt

Snake Game

Resources

Python for Everybody

freeCodeCamp

Programming with Mosh

Module 2

App Development

Learn

UI

Buttons

Layouts

Navigation

APIs

Projects

To-do App

Calculator

Drawing App

Weather App

Recipe App

Habit Tracker

Flashcards

Math Quiz

Vocabulary Builder

Mood Journal

Final Project

Publish an Android app.

Module 3

Game Development

Learn

Sprites

Animation

Collision

Physics

Scores

Levels

Projects

Catch the Apple

Flappy Bird

Platformer

Maze

Space Shooter

Snake

Chess

Pokemon Clone

Resources

Scratch

Godot

Unity (later)

Module 4

Artificial Intelligence

Explain

How AI works

Machine Learning

Neural Networks

Computer Vision

Chatbots

Image Generation

Speech Recognition

Projects

Rock Paper Scissors AI

Cat vs Dog Classifier

Movie Recommendation

Drawing Recognition

Emotion Detector

AI Story Generator

Mini ChatGPT

Module 5

Data Science

Learn

Spreadsheets

Graphs

Python

Pandas

Visualization

Projects

Analyze favorite movies

Pokemon Dataset

Weather

School Grades

Spotify Songs

Olympics

Animal Dataset

NASA Data

Kaggle

Module 6

Robotics

Arduino

Sensors

Motors

LED

Ultrasonic

Bluetooth

Projects

Blinking LED

Traffic Light

Obstacle Robot

Smart Plant

Line Follower

Smart Door

Mini Car

Weather Station

Robot Arm

Module 7

Business

How apps make money

Startups

Marketing

Branding

Design

Pitching

Projects

Invent an app

Create logo

Design website

Pitch to family

Launch a small business

Every module includes

 Books

 YouTube

 Courses

 Challenges

 Worksheets

 Competitions

 Fun Facts

 Games

 Reflection

I'd also organize learning like a game

Instead of:

Finish Course

It becomes

Kids stay motivated much longer this way.

Courses I'd include

Programming

- Harvard CS50x (later, around age 13–14)
- Harvard CS50 Python
- Code.org
- Khan Academy
- freeCodeCamp

App Development

MIT App Inventor

Flutter

Android Studio

Game Development

Scratch

Godot

Unity

AI

Google Teachable Machine

Machine Learning for Kids

Elements of AI

FastAI (later)

Data Science

Kaggle Learn

Pandas

Matplotlib

Tableau Public

Robotics

Arduino

micro:bit

LEGO SPIKE

Raspberry Pi

YouTube Channels

Programming

- freeCodeCamp.org
- Programming with Mosh
- Bro Code
- CS Dojo
- Tech With Tim

Kids Programming

- Code.org
- Khan Academy Computing
- Crash Course Kids

AI

- 3Blue1Brown

- CodeEmporium
- IBM Technology
- DeepLearningAI
- Two Minute Papers

Data Science

- Alex The Analyst
- Luke Barousse
- StatQuest
- Ken Jee

Robotics

- Jeremy Blum
- Paul McWhorter
- DroneBot Workshop

Game Development

- Brackeys
- GDQuest
- HeartBeast

App Development

- Flutter
- Coding with Mitch
- Philipp Lackner